

**SAGERETIA MEXICANA (RHAMNACEAE), A NEW SPECIES FROM
SOUTHWESTERN MEXICO**

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ABSTRACT

A new species of Rhamnaceae from southwestern México (the states of Jalisco, Michoacán, and México) is described: *Sageretia mexicana* Nesom. It is distinguished from the widespread *S. elegans* by its smaller, lanceolate leaves and its abbreviated inflorescence with a short, unbranched, terminal rachis and 1-3 axillary floral clusters. Also provided are an illustration of the new species, a key to the four New World species of *Sageretia*, with notes on their variability and distribution, and a distribution map for the three species that occur in México. It is suggested that the New World species may not form a monophyletic group but instead may have at least two separate lines of relationship to Old World species.

KEY WORDS: *Sageretia*, Rhamnaceae, México

Several particularly small-leaved collections of the genus *Sageretia* Brongn. have been made from the Mexican states of Jalisco, Michoacán, and México. These have been identified as *S. elegans* (Kunth) Brongn., a widespread species ranging from México southward as far as Argentina. On comparison, however, of both the leaves and inflorescence of these small-leaved plants with *S. elegans*, as well as with the two other New World species of *Sageretia*, *S. minutiflora* (Michx.) Trel. and *S. wrightii* S. Wats., the plants from southwestern México appear to represent a previously undescribed species.

Sageretia mexicana Nesom, *sp. nov.* (Fig. 1; Map 1) TYPE: MEXICO. Michoacán. Balneario Huapamacataro, 10 km al SE de Maravatio, orilla de un estanque y canales adyacentes, 2050 m, 31 Mar 1988, *J. Rzedowski 46308* (HOLOTYPE: TEX!; Isotypes: IBE, TEX!).

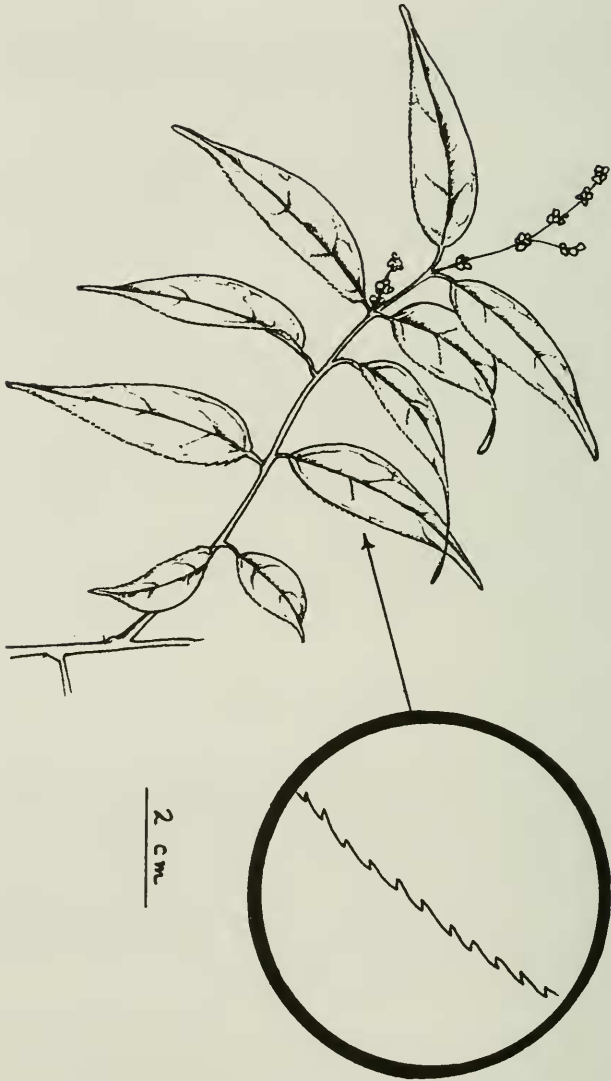


Figure 1. Habit illustration of *Sageretia mexicana*.



Map 1. Geographic distribution of *Sageretia* species in México and adjacent southwestern United States. The range of *S. elegans* continues southward into Central and South America.

Differt a *Sageretiae eleganti* (Kunth) Brongn. foliis lanceolatis minoribusque et inflorescentia valde abbreviata rhachidi brevi simplici terminali ac fasciculis 1-3 floralibus axillaribus.

Perennial shrubs 1.5-2.0 m tall with weak, subscaudent branches, probably producing short thorns but these not seen on the specimens available. Leaves opposite, tardily deciduous or perhaps evergreen, thin-coriaceous, slightly villos when young but quickly glabrescent, both surfaces glabrous and glossy-green at maturity, petioles 1-2 mm long, the blades lanceolate, 2-5 cm long, 5-15 mm wide, 2.5-3.0 times longer than wide, with 4-7 pairs of primary lateral veins, apex acute to acuminate, base rounded to obtuse or slightly cordate, margins serrulate. Inflorescence a terminal, simple branch 1.5-3.4 cm long, with widely separated fascicles of sessile flowers at 3-5 nodes, additional sessile fascicles or short branches (0.5-3.0 cm long) commonly in the axils of the upper 1-3 pairs of fully developed leaves. Flowers 5-merous, perfect; calyx ca. 1 mm long with triangular lobes equaling the tube; petals shorter than the calyx, whitish. Fruit a subglobose drupe, purplish-black to reddish at maturity, with 3, 1-seeded nutlets. Apparently flowering at least January-June, the fruits maturing slowly and long-persistent; e.g., the holotype bears only flowers, but the TEX isotype is fruiting.

Additional collections examined: MEXICO. Jalisco: Barranca del Nogal, 15 km SE de Tapalpa, bosque tropical caducifolio, 2100 m, 14 Oct 1990 (frt), *Flores 2540* (TEX); Salcillo, 1 Jun 1892 (flr), *Jones 75* (US); Zona Arqueologica del Sur de Tapalpa, 9 May 1965 (flr, frt), *Villarreal de Puga 97* (TEX). México: Dist. Temascaltepec, Ypericones, wet barranca, 1500 m, 4 May 1933 (flr), *Hinton 3891* (US); Dist. Temascaltepec, Ypericones, 5 Jan 1935 (flr), *Hinton 7720* (US-2 sheets). Michoacán: Senguio, 15 Apr 1979 (flr), *Calvert s.n.* (TEX).

The new species has mostly been identified as *Sageretia elegans*, which has a broad geographic range and is particularly variable in leaf size, but the large inflorescence and ovate-shaped leaves are relatively constant features of this species. In fact, *S. elegans* is most similar among the New World taxa to *S. minutiflora*, the two differing almost exclusively in leaf size. Further, some specimens of small-leaved plants of *S. elegans* from central Veracruz (see below) certainly would be identified as *S. minutiflora* if they had been collected in the southeastern United States. While these latter two taxa might be combined as a single species, their geographic disjunction and their essentially different leaf sizes justify the maintenance of two distinct taxa.

The only other North American species with an abbreviated inflorescence similar to that of *Sageretia mexicana* is *S. wrightii*. The two species, however, are distinct in geography (Map 1) and habitat as well as the size and the shape of their leaves. *Sageretia wrightii* appears to be morphologically isolated among the New World species; *S. mexicana* is more similar to *S. elegans* and

S. minutiflora in habit, leaf shape and size, and habitat. As further noted below, at least *S. elegans* and *S. wrightii* may be independently related to Old World species rather than constituting a monophyletic American group.

Key to the New World species of *Sageretia*

1. Densely and compactly branched shrubs; leaves mostly oblong-elliptic, 5-22 mm long, 4-11 mm wide, obtuse, retuse, or rounded at the apex.
..... *S. wrightii*
1. Loosely to compactly branched shrubs, branches often becoming trailing or viny; leaves ovate to lanceolate, acute to acuminate at the apex, 15-115 mm long, 12-60 mm wide. (2)
 2. Flowers borne on a single, short, terminal branch and several, axillary, sessile to short ones; leaves lanceolate, 2.5-3.0 times longer than wide. *S. mexicana*
 2. Flowers borne in broad, highly branched, terminal and lateral panicles; leaves ovate to elliptic-ovate, mostly 1.4-2.2 times longer than wide. (3)
3. Leaves 15-38 mm long, 12-20 mm wide, 1.4-2.1 times longer than wide.
..... *S. minutiflora*
3. Leaves (30-)40-115 mm long, (14-)20-40(-60) mm wide, (1.3-)1.7-2.2(-2.8) times longer than wide. *S. elegans*

Summary of the New World species

Sageretia mexicana Nesom.

See above.

Sageretia elegans (Kunth) Brongn., Ann. Sci. Nat. (Paris) 10:359. 1827.

Weak shrubs with long, subsucculent branches, commonly leaning on larger trees, with widely spaced thorns. Leaves tardily deciduous, mostly 20-40(-60) mm wide, on a few plants of several collections from central Veracruz (e.g., Ventura 5986 [TEX]) as small as 28 mm long and 14 mm wide. Inflorescence terminal and lateral, branches 5-15 cm long, with 4-8 lateral branches 2-6 cm

long, several inflorescence branches often arising from the apex of the leafy stem. Illustration: Fernández N. (1986).

Veracruz and Sinaloa to Chiapas, México, southward through Central America and the Andean region of South America to Bolivia and Perú, and into Paraguay and Argentina; matorral and thorn forest to oak and tropical deciduous woods.

Sageretia minutiflora (Michx.) Trel., Trans. Acad. Sci. St. Louis 5:367. 1889.

Sprawling shrubs with drooping or vine-like branches, sometimes climbing into overstory, with widely spaced thorns. Leaves evergreen or tardily deciduous, mostly 15-38 mm long, 12-20 mm wide, 1.4-2.1 times longer than wide. Inflorescence similar to that of *Sageretia elegans* but averaging slightly smaller. Illustrations: Gray & Sprague (1849); Radford *et al.* (1968).

Southeastern United States in coastal South Carolina and Georgia, scattered coastal localities along Gulf of Mexico, from Florida to Alabama and Mississippi; hammocks, shell mounds, beach borders, live oak, oak-palm, oak-hickory, or beech-magnolia woods (see Kral 1983 for further details on habitat and distribution).

Sageretia wrightii S. Watson, Proc. Amer. Acad. Arts 20:358. 1885.

Densely and intricately branched shrubs, sometimes tall and narrow but usually weak and straggly, stems commonly arching or arcuate-decumbent, with numerous, long thorns. Leaves persistent-evergreen, mostly broadly oblanceolate to oblong-elliptic, 5-22 mm long, 4-11 mm wide, 1.5-2.1(-2.8) times longer than wide, obtuse, retuse, or rounded at the apex. Inflorescence branches usually simple or nearly so, 5-10 mm long, terminal or in the axils of the uppermost, well-developed leaves. Illustrations: Johnston & Johnston (1969); Powell (1988).

Southwestern United States from trans-Pecos Texas (Hudspeth and Presidio cos.) to New Mexico (Hidalgo Co.) and southeastern Arizona (Cochise, Pima, Graham, Maricopa, Pinal, and Gila cos.), south in México to Sonora, Chihuahua, Coahuila, Durango, Jalisco, and Baja California Sur; the disjunction (Map 1) between the main range of this species and populations in the Sierra de la Giganta (Baja California Sur) appears to be real; matorral, chaparral (oak with *Agave*, *Yucca*, *Rhus*, etc.), to open pine woodlands.

Overview of the genus

Sageretia is primarily a genus of the Old World, where it is distributed from Turkey southward into the Arabian peninsula and Ethiopia, eastward across the Himalayan region from northwestern India and Tibet to southeastern China, Laos, Taiwan, Java, and northern Australia. The generitype and most widespread species, *S. thea* (Osbeck) M.C. Johnston (Johnston 1968), or the *S. thea* complex (see Zielinski 1977), is distributed across nearly the entire Old World range of the genus, from Africa, Arabia, and Asia Minor to southeastern China and the Philippines.

Relatively recent estimates of the number of species of *Sageretia* have mostly ranged from about 10 to 20 (e.g., Grubov 1949; Johnston & Johnston 1969; Li 1977). The recent treatments of Chinese *Sageretia* (Chen & Zhou 1982, 1986), however, have confirmed the existence of high species diversity in south-central and southeastern China. I count about 15 Old World species, although that number might be reduced by two or three if Zielinski's (1977) conservative view of *S. thea* is followed. It is reasonably clear that only a single species (*S. elegans*) exists in Central and South America, where seven species names have been proposed, bringing the number of New World species to four and the total number of *sageretias* to about 19.

Technical, generic descriptions of *Sageretia* and a summary of relevant literature are provided by Brizicky (1964) and Johnston & Johnston (1969). The genus is notably uniform in floral morphology as well as habit; distinctions between species are drawn primarily on features of the leaf size and shape and the degree of elaboration and position of the inflorescence. While such differentiation might seem to occur easily among closely related species, *S. wrightii* appears to be more similar to the Old World *S. thea* in habit and leaf morphology than to the other New World species, particularly some of the small-leaved, compact forms of the *S. thea* complex in Saudi Arabia, Iran, Afghanistan, and Pakistan. Old World analogs also can be found for *S. elegans*/*S. minutiflora* and *S. mexicana*. In view of this, there is no compelling reason to hypothesize that the New World species form a monophyletic group. Given the difficulty of recognizing morphological homologies among these taxa, other lines of data, particularly those from molecular and anatomical analyses, probably will be necessary to delineate the patterns of evolutionary relationship within *Sageretia*.

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